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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,194	08/19/2004	Hideaki Miura	890050.497USPC	3719

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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVE
SUITE 5400
SEATTLE, WA 98104

EXAMINER	
GIESY, ADAM	
ART UNIT	**PAPER NUMBER**
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/505,194	MIURA ET AL.	
	Examiner	Art Unit	
	Adam R. Giesy	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7,9-12 and 14-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7,9-12 and 14-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant, in line 2 of claim 16, recites "...a first recording layer on at least a second recording...". This language is not understood by the Examiner. Further clarification or rephrasing is required.

For the purposes of furthering prosecution, the Examiner will interpret line 2 of claim 16 to read -- ...a first recording layer and at least a second recording layer...--.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Miyamoto et al. (hereinafter Miyamoto – US Pat. No. 6,236,635 B1).

Regarding claim 16, Miyamoto discloses a method for recording information in an optical recording medium having at least a first recording layer on at least a second recording, the method comprising: projecting a laser beam having pulses modulated in

power between a plurality of levels onto the optical recording medium via light incidence plane, wherein at least a recording power is included in the plurality of levels (see Figures 2 and 12 – note that there are several power levels labeled P0-P10 on the right-hand side of Figure 12); forming a plurality of recording marks on the optical recording medium (see Figure 12 – note the recording marks are listed on the left as '3T MARK', '4T MARK', etc.); and setting the recording power of a top pulse and a last pulse of the laser beam to a substantially equal level lower than the recording power of other pulses within the laser beam when at least one recording mark is to be formed in the first recording layer (see Figure 12 – note that in the 6T mark, the first and last pulses of the multipulse train are lower than the middle multipulses).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 3, 4, 7, 9, 12, 14, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. (hereinafter Miyamoto – US Pat. No. 6,236,635 B1) in view of Ito et al. (hereinafter Ito – US Pat. No. 5,768,251).

Regarding claim 1, Miyamoto discloses an information recording method for recording information in an optical recording medium having at least a first information recording layer, the method comprising: projecting a pulse-like laser beam whose power is modulated between a plurality of levels including at least a recording power onto the

optical recording medium via a light incidence plane (see Figures 2 and 12 – note that there are several power levels labeled P0-P10 on the right-hand side of Figure 12); forming thereon a plurality of recording marks selected from a group consisting of several types of recording marks with different lengths (see Figure 12 – note the recording marks are listed on the left as '3T MARK', '4T MARK', etc.); and setting the recording powers of a top pulse and/or a last pulse of the laser beam used when at least one recording mark is to be formed in the first information recording layer to be lower than the recording power of a multi-pulse thereof, thereby recording information in the first information recording layer (see Figure 12 – note that in the 6T mark, the first and last pulses of the multipulse train are lower than the middle multipulses). Miyamoto fails to disclose that the recording medium has two recording layers.

Ito discloses an optical storage medium in which two single layer discs are combined to create a two layer disc (see Figure 14a; see also column 13, lines 1-5).

Furthermore, the Examiner asserts that it would be inherent that if a two sided disc as disclosed by the combination of Miyamoto and Ito (as discussed in the claim 1 rejection above) were to be placed in the apparatus as disclosed by Miyamoto (Figure 2), the first recording layer would be located on the light incident plane in relation to the second recording layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of recording to a single layer disc as disclosed by Miyamoto with a two recording layer disc created from two single layer

discs as disclosed by Ito, the motivation being to create a higher capacity optical storage medium that decreases the phenomenon of cross erasure between tracks.

Regarding claim 3, Miyamoto and Ito disclose all of the limitations of claim 1 as discussed in the claim 1 rejection above. Miyamoto further discloses that the recording power of the top pulse and the recording power of the last pulse are set to be at the same level (see Figure 12 – note that the top pulse and the last pulse of the 6T mark appear to be at the same level and lower than the middle multipulses).

Regarding claim 4, Miyamoto and Ito disclose all of the limitations of claim 1 as discussed in the claim 1 rejection above. Miyamoto further discloses that information is recorded with the recording powers of the top pulse and/or the last pulse of the laser beam set to be substantially the same as the recording power of the multi-pulse thereof (see Figure 11). Miyamoto does not disclose a second recording layer. The Examiner asserts that it would be inherent that if a two sided disc as disclosed by the combination of Miyamoto and Ito (as discussed in the claim 1 rejection above) were to be flipped so that the second side can be recorded upon, then the apparatus of Miyamoto (Figure 2) can record marks using the multipulse trains as shown in Figure 11.

Apparatus claims 7 and 9 are drawn to the apparatus corresponding to the method of using same as claimed in claims 1 and 4. Therefore apparatus claims 7 and 9 correspond to method claims 1 and 4, and are rejected for the same reasons of anticipation (obviousness) as used above.

Regarding claim 12, Miyamoto discloses an optical recording medium comprising: at least a first information recording layer in which information can be

recorded by projecting a pulse-like laser beam whose power is modulated between a plurality of levels including at least a recording power onto the optical recording medium via a light incidence plane and forming thereon a plurality of recording marks selected from a group consisting of several types of recording marks having different lengths (see Figures 2 and 12 – note that there are several power levels labeled P0-P10 on the right-hand side of Figure 12), wherein the recording powers are set with information required for setting the recording powers of a top pulse and/or a last pulse of the laser beam used when information is to be recorded in the first information recording layer to be lower than the recording power of a multi-pulse thereof (see Figure 12 – not that in the 6T mark, the first and last pulses of the multipulse train are lower than the middle multipulses). Miyamoto fails to disclose that the recording medium has two recording layers.

Ito discloses an optical storage medium in which two single layer discs are combined to create a two layer disc (see Figure 14a; see also column 13, lines 1-5).

Furthermore, the Examiner asserts that it would be inherent that if a two sided disc as disclosed by the combination of Miyamoto and Ito (as discussed in the claim 1 rejection above) were to be placed in the apparatus as disclosed by Miyamoto (Figure 2), the first recording layer would be located on the light incident plane in relation to the second recording layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the optical recording medium as disclosed by Miyamoto with a two recording layer disc created from two single layer discs as disclosed by Ito,

the motivation being to create a higher capacity optical storage medium that decreases the phenomenon of cross erasure between tracks.

Regarding claim 14, Miyamoto and Ito disclose all of the limitations of claim 12 as discussed in the claim 12 rejection above. Miyamoto further discloses that information is recorded with the recording powers of the top pulse and/or the last pulse of the laser beam set to be substantially the same as the recording power of the multi-pulse thereof (see Figure 11). Miyamoto does not disclose a second recording layer. The Examiner asserts that it would be inherent that if a two sided disc as disclosed by the combination of Miyamoto and Ito (as discussed in the claim 1 rejection above) were to be flipped so that the second side can be recorded upon, then the apparatus of Miyamoto (Figure 2) can record marks using the multipulse trains as shown in Figure 11.

Regarding claim 15, Miyamoto and Ito disclose all of the limitations of claim 12 as discussed in the claim 12 rejection above. Ito also discloses a light transmission layer and the light transmission layer has a thickness of 30 to 200 .mu.m (see column 5, lines 20-25).

Regarding claim 17, Miyamoto discloses all of the limitations of claim 16 as discussed in the claim 16 rejection above. Miyamoto fails to disclose that the recording medium has two recording layers.

Ito discloses an optical storage medium in which two single layer discs are combined to create a two layer disc (see Figure 14a; see also column 13, lines 1-5).

Furthermore, the Examiner asserts that it would be inherent that if a two sided disc as disclosed by the combination of Miyamoto and Ito (as discussed in the claim 1

rejection above) were to be placed in the apparatus as disclosed by Miyamoto (Figure 2), the first recording layer would be located on the light incident plane in relation to the second recording layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the optical recording medium as disclosed by Miyamoto with a two recording layer disc created from two single layer discs as disclosed by Ito, the motivation being to create a higher capacity optical storage medium that decreases the phenomenon of cross erasure between tracks.

7. Claims 5, 6, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. (hereinafter Miyamoto – US Pat. No. 6,236,635 B1) in view of Ito et al. (hereinafter Ito – US Pat. No. 5,768,251) and further in view of Suzuki (US Pat No. 6,771,579 B2).

Regarding claim 5, Miyamoto and Ito disclose all of the limitations of claim 1 as discussed in the claim 1 rejection above. Neither Miyamoto or Ito disclose a wavelength or numerical aperture.

Suzuki discloses an optical recording method in which a wavelength .lambda. of the laser beam and a numerical aperture NA of an objective lens satisfy the condition that .lambda./NA is equal to or shorter than 700 nm (see column 4, lines 56-57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of recording to a single layer disc as disclosed by Miyamoto with a two recording layer disc created from two single layer discs as disclosed by Ito and the numerical aperture/wavelength combination as

disclosed by Suzuki, the motivation being to create a higher capacity high density optical storage medium that decreases the phenomenon of cross erasure between tracks.

Regarding claim 6, Miyamoto and Ito disclose all of the limitations of claim 1 as discussed in the claim 1 rejection above. Neither Miyamoto or Ito disclose a wavelength or numerical aperture.

Suzuki discloses an optical recording method in which the laser beam has a wavelength .lambda. of 200 to 450 nm (see column 4, lines 58-59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of recording to a single layer disc as disclosed by Miyamoto with a two recording layer disc created from two single layer discs as disclosed by Ito and the wavelength of the laser beam as disclosed by Suzuki, the motivation being to create a higher capacity high density optical storage medium that decreases the phenomenon of cross erasure between tracks.

Apparatus claims 10 and 11 are drawn to the apparatus corresponding to the method of using same as claimed in claims 5 and 6. Therefore apparatus claims 10 and 11 correspond to method claims 5 and 6, and are rejected for the same reasons of anticipation (obviousness) as used above.

Response to Arguments

8. Applicant's arguments filed 2/1/2007 have been fully considered but they are not persuasive.

Applicant argues, on pages 7-10 of the Response, that the combination of Miyamoto and Ito does not inherently disclose a disc with two recording layers wherein the first recording layer is on the side of the incident plane with respect to the second recording layer. The Examiner respectfully disagrees. Since the combination of Miyamoto and Ito would yield a disc with two incident planes, placing the disc in any recording apparatus with the first recording side facing the optical head would yield an optical medium wherein the first recording layer is on the side of the incident plane with respect to the second recording layer (using the broadest possible interpretation).

Applicant also argues, on page 10 of the Response, that the newly added claim 16 recites recording wherein the first and last pulse of the pulse train are at "substantially equal" levels. The Examiner would like to point out that although different, these level appear to be substantially equal when viewed in light of the recording powers P2 or P0.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam R. Giesy whose telephone number is (571) 272-7555. The examiner can normally be reached on 8:00am- 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ARG 4/13/2007

Adam R Giesy

William Korzuch

WILLIAM KORZUCH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600